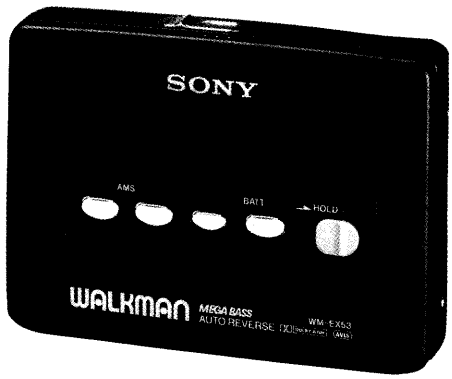
WM-EX53/EX57/EX59

SERVICE MANUAL

AEP Model
E Model
WM-EX53/EX57/EX59
UK Model
WM-EX53/EX57



WM-EX53

WM-EX59

SPECIFICATIONS

Frequency response (DOLBY NR* off)
40 – 15,000 Hz
Output — Headphones (stereo minijack)
load impedance 8 – 300 ohms
Power output — 5 mW + 5 mW at DC operation, 16 ohms
Power requirements
1.5 V DC
One R6 (size AA) battery
DC IN 1.5V jack accepts:
Sony AC-E15L or AC-E15AL (WM-EX53/EX59) AC power adaptor (not supplied)
available in U.K. for use on 240 V AC, 50 Hz
available in European countries for use on 220 V AC, 50 Hz
available in other countries for use on 120 V AC, 60 Hz or 220 V AC, 50 Hz
Sony DCC-E115L car battery cord (not supplied) for use with 12 V car battery.
Dimensions — Approx. 108.8 × 77.5 × 29.7 mm (w/h/d) incl. projecting parts and controls
Mass — Approx. 185 g incl. battery, not incl. other accessories
Supplied accessories
Stereo headphones (1)
Ear adaptors (2) : If the headphones do not fit your ears, attach the ear adaptors.
Carrying case (1)

Optional accessories
AC power adaptor AC-E15L, AC-E15AL (WM-EX53/EX59)
Car battery cord DCC-E115L

Your dealer may not handle some of the optional accessories listed above. Please ask the dealer for detailed information.

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol ⊡⊡ are trademarks of Dolby Laboratories Licensing Corporation.

Note
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Design and specifications subject to change without notice.

Dolby noise reduction manufactured under license from Dolby Laboratories licensing Corporation.
"DOLBY" and the double-D symbol ⊡⊡ are trademarks of Dolby Laboratories Licensing Corporation.

Flexible Circuit Board Repairing
- Keep the temperature of the soldering iron around 270℃ during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip componet replacement
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

CASSETTE PLAYER

SONY®

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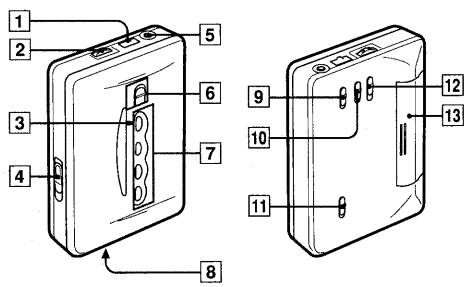
SECTION 1
GENERAL

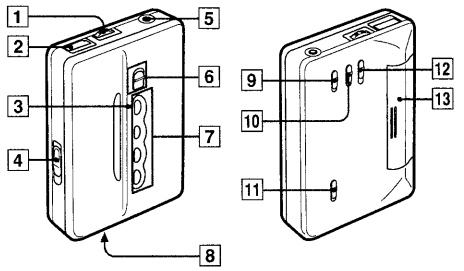
This section is extracted from instruction manual.

Parts Identification (WM-EX53)

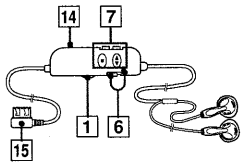


1 AVLS (Automatic Volume Limiter System) selector
2 VOL (volume) control
3 BATT (battery) indicator
4 OPEN switch
5 PHONES (headphones) jack
6 HOLD switch
7 Tape operation buttons
8 DC IN 1.5V (external power input) jack
9 TAPE selector
10 DOLBY NR (Dolby Noise Reduction) switch
11 MODE/BLANK SKIP selector
12 MEGA BASS selector
13 Battery compartment

Parts Identification (WM-EX57/EX59)

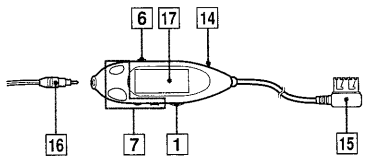


Headphones with Remote Controller (WM-EX57)

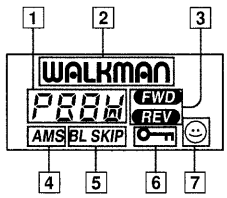


1 VOL (volume) control
2 Ω/REMOTE (headphones/remote controller) jack
3 BATT (battery) indicator
4 OPEN switch
5 PHONES (headphones) jack
6 Main unit: HOLD switch
Remote controller: HOLD switch and indicator
7 Tape operation buttons
8 DC IN 1.5V (external power input) jack
9 TAPE selector
10 DOLBY NR (Dolby Noise Reduction) switch
11 MODE/BLANK SKIP selector
12 MEGA BASS selector
13 Battery compartment
14 AVLS (Automatic Volume Limiter System) selector
15 Nine pole plug
16 Micro plug
17 Display window

Headphones and Remote Controller (WM-EX59)



Display Window on the Remote Controller



B Display Window on the Remote Controller

1 Tape operation indication
2 Tape transport indication (flashing when tape is moving)
3 Tape playback side (forward/reverse) indication
4 AMS indication
5 BL SKIP (blank skip) indication
6 HOLD indication
7 AVLS indication

SECTION 2
SERVICING NOTE

Hall sensor H701 mounted on the main board is used to detect rotation of the reels. Because it is mounted on the main board, when the main board is being removed, rotation of the reels cannot be detected and the auto-off/ tape-end detector circuit does not operate correctly.
Switch S701 (for N/R and FF/REW) is also mounted on the main board. Therefore, without the main board, the head cannot be placed in playback position, and power cannot be supplied to the circuitry of the playback system.
When the main board is being removed, follow the procedures below, in order to check operation of the mechanisms of the tape deck and to check voltages supplied to each circuit.

NOTE:

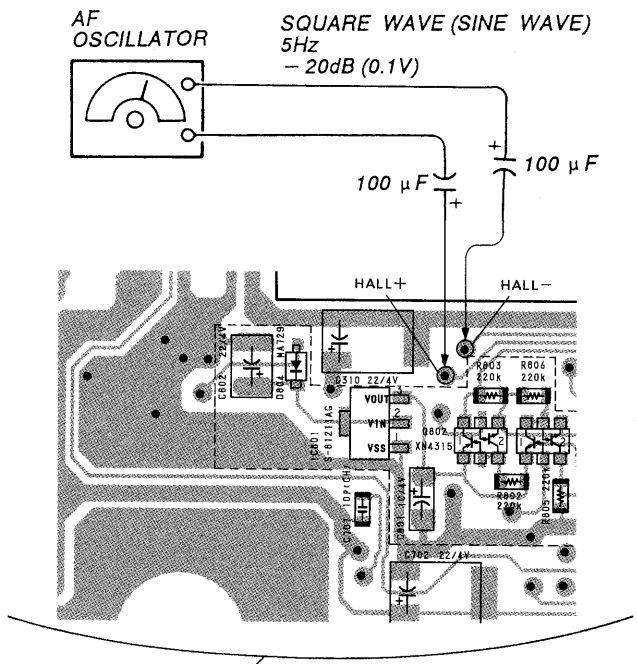
Do not change the setting position of switch S701 when removing the main board. If it has been changed accidentally, or if the desired mode cannot be set with the switch, adjust the setting again after the main board is installed.

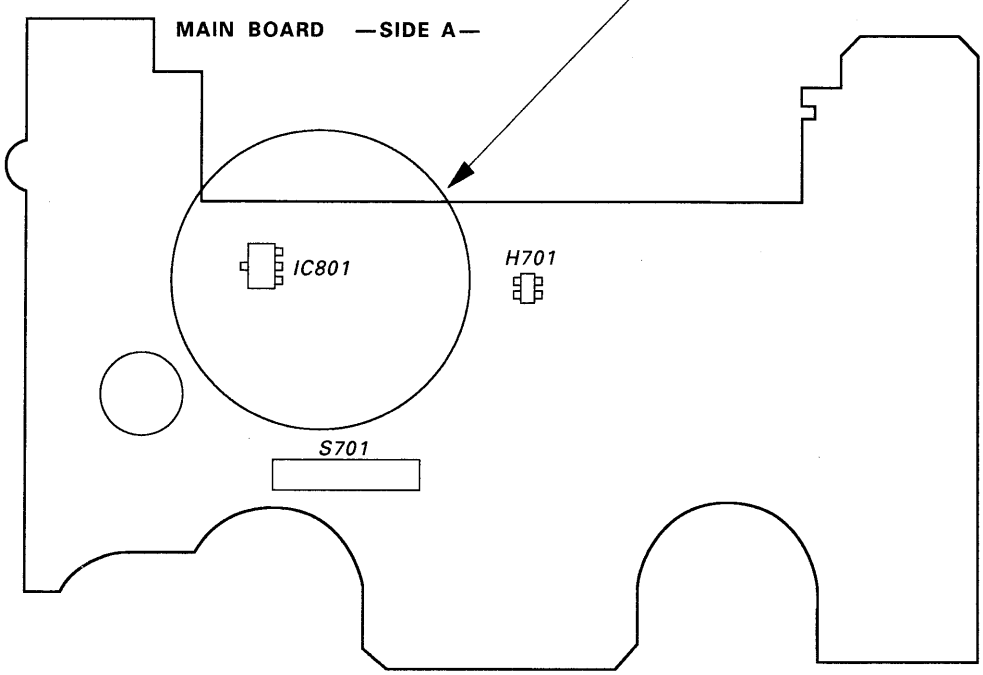
FF/REW mode

(1) Apply a square wave signal or a sine wave signal to hall sensor H701. (See the figure on the right.)
(2) Press the ST switch for selecting STOP mode.
(3) Press the FF or REW switch.
(4) Remove the main board.

PLAY mode

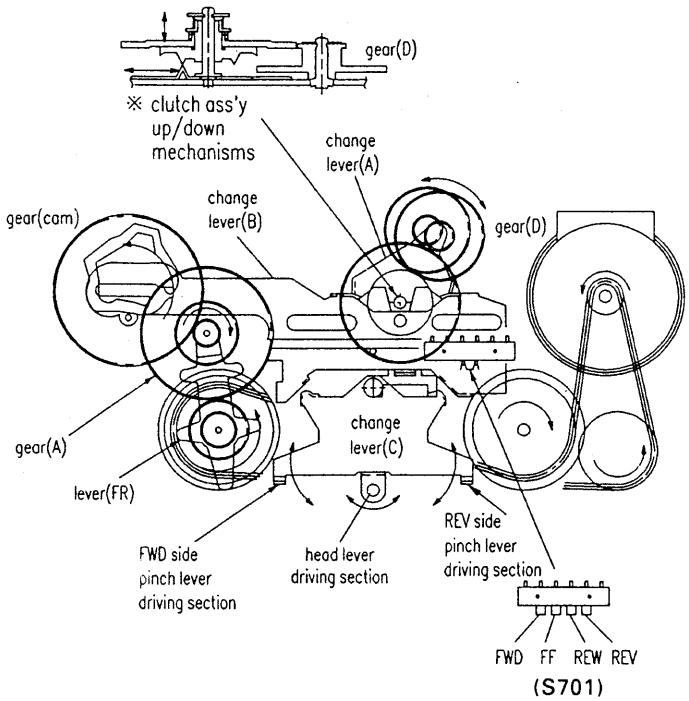
(1) Apply a square wave signal or a sine wave signal to hall sensor H701. (See the figure on the right.)
(2) Press the ST switch for selecting STOP mode.
(3) Press the PL switch. With the main board installed, pressing the PL switch selects the FWD or REV mode alternatively.
(4) Remove the main board.





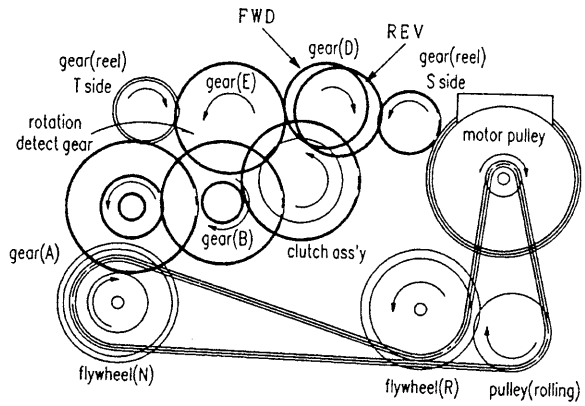
Function of the lever and rotating mechanisms for mode selection

- Mode selection starts when the motor rotates reversely.
- Change lever (B) moves to the left or right when driven with the gear (cam).
- The switch set position of switch S701 (4-position switch) is determined in accordance with the position of Change lever (B). When the switch set position is set appropriately, the motor rotates normally and the tape starts moving.

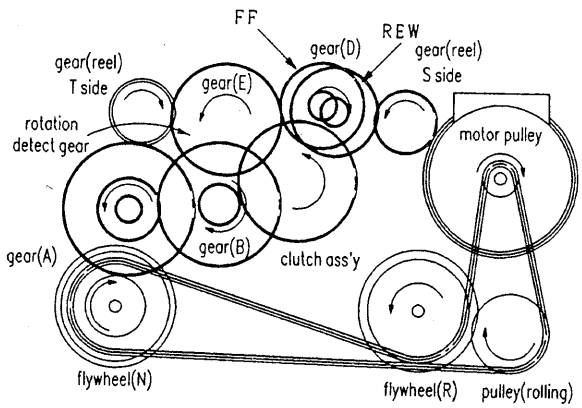


- Lever (FR) is driven with gear (A) by friction, and it swings to the left or right depending on the rotating direction of the motor.
- Selector levers (A) and (C) also swing to the left or right in accordance with the movement of Change lever (B), and the clutch assembly moves upward or downward accordingly.
- The pinch roller is activated and the head is placed in playback position with selector lever (C).
- When the mode is switched from one mode to another, the pinch roller is activated while the motor is rotating reversely (for a short period of time), causing a little slackness in the tape transport.

1. Rotating Mechanisms in PLAY Mode



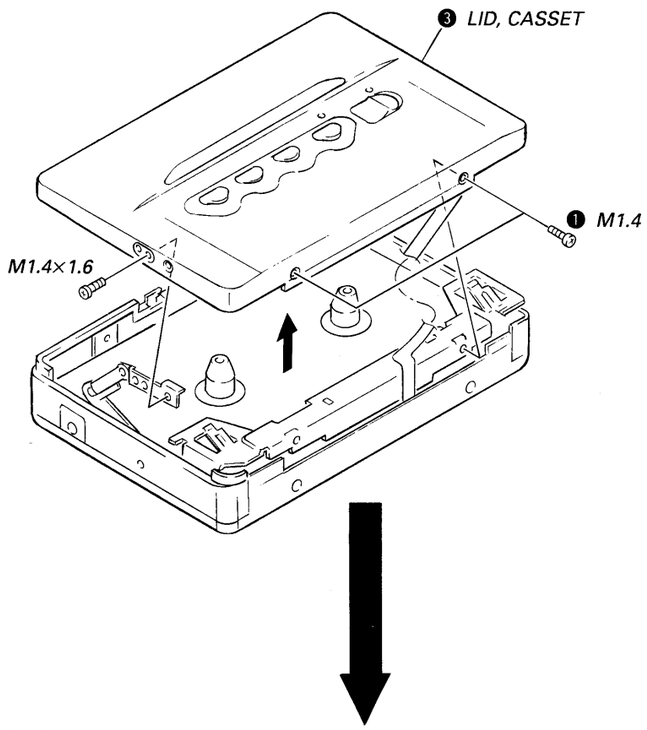
2. Rotating Mechanisms in FF, REW Mode



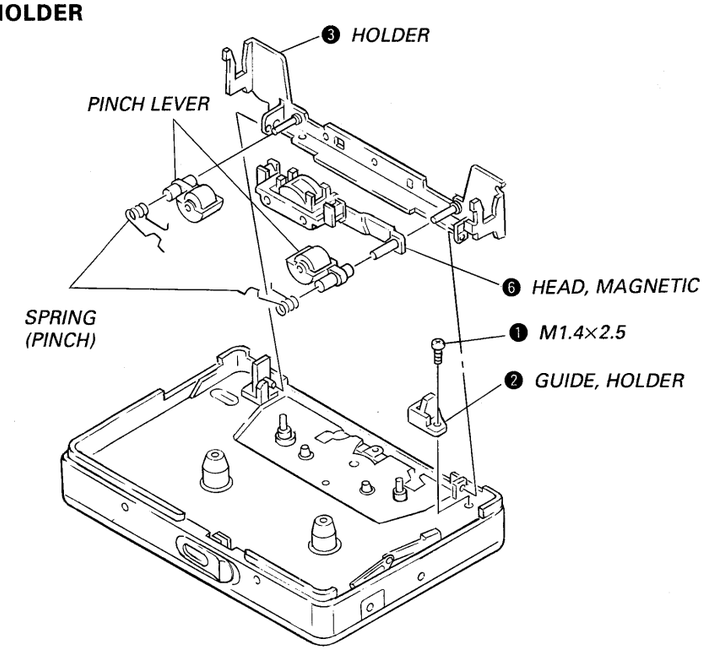
SECTION 3
DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

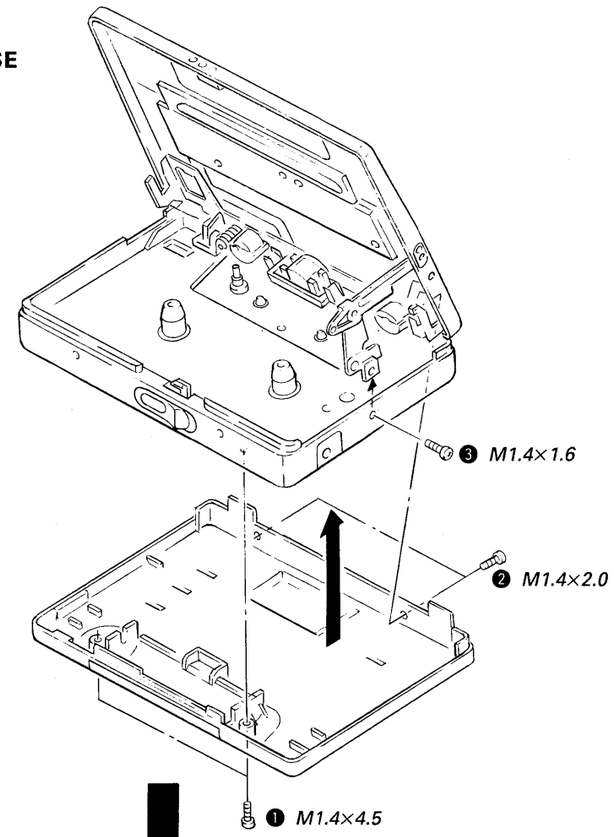
LID, CASSETTE



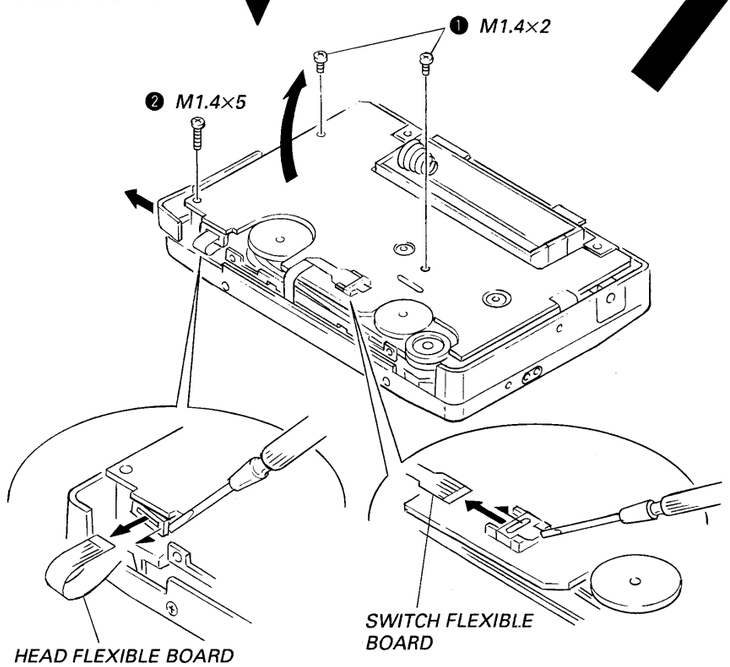
HOLDER



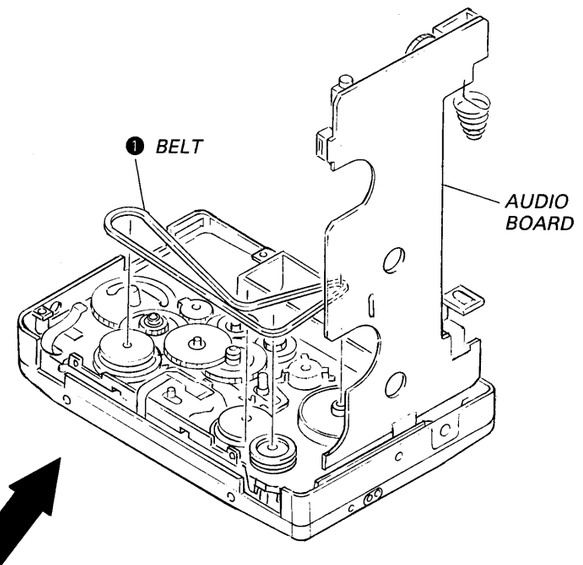
CASE



AUDIO BOARD

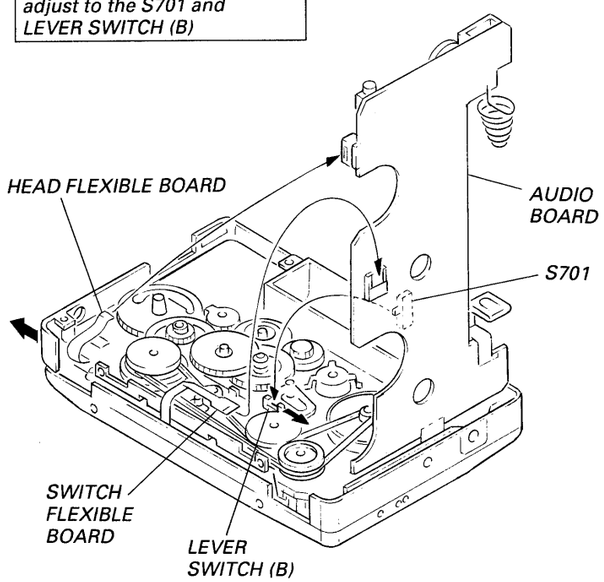


BELT



INSTALLATION AUDIO BOARD

On installation AUDIO BOARD, adjust to the S701 and LEVER SWITCH (B)



SECTION 4
ADJUSTMENTS

MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   playback head — pinch roller
   capstan — rubber belts
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	21 — 38 g·cm (0.29 — 0.52 oz·inch)
FWD Back Tension		0.5 — 3.0 g·cm (0.01 — 0.04 oz·inch)
REV	CQ-102RC	21 — 38 g·cm (0.29 — 0.52 oz·inch)
REV Back Tension		0.5 — 3.0 g·cm (0.01 — 0.04 oz·inch)
FF	CQ-201B	more than 60 g·cm (more than 0.83 oz·inch)
REW		

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-403A	more than 40 g (more than 1.4 oz)
REV	CQ-403R	

ELECTRICAL ADJUSTMENTS

Not s

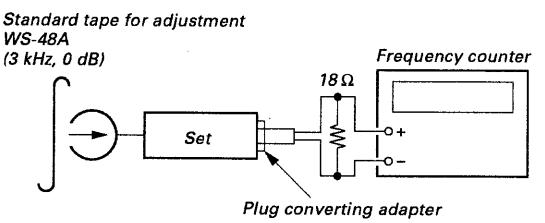
1. Reference voltage: 1.3V
2. Switch position
   DOLBY switch : OFF
   MEGA BASS switch : NORM
3. Connect the output to headphone jack after installing the plug converting adapter (Parts No.: 1-568-133-11) supplied to the ear receiver remote control jack.

Cassette Block

Standard tape

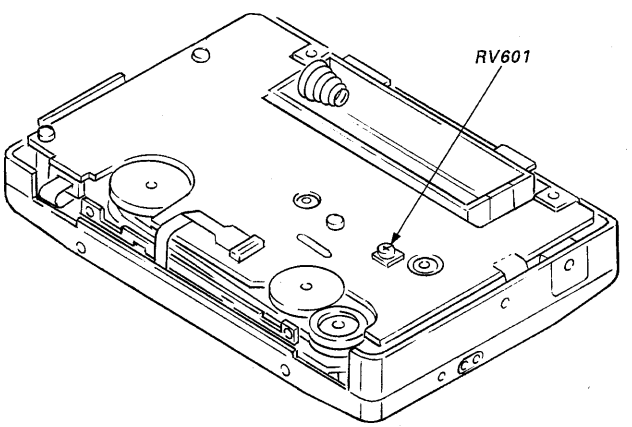
Name	Contents	Use
WS-48A	3 kHz, 0 dB	For speed adjustment

[Tape Speed Adjustment]
Adjusting method:



1. Playback WS-48A (tape center part) in forward direction, and adjust RV601 so that the reading of frequency counter becomes 3,000±30 Hz.
2. Playback WS-48A (tape center part) in reserve direction. At this time, make sure that the reading of frequency counter is within 2.0% against the reading in step 1 above.

Adjusting point:

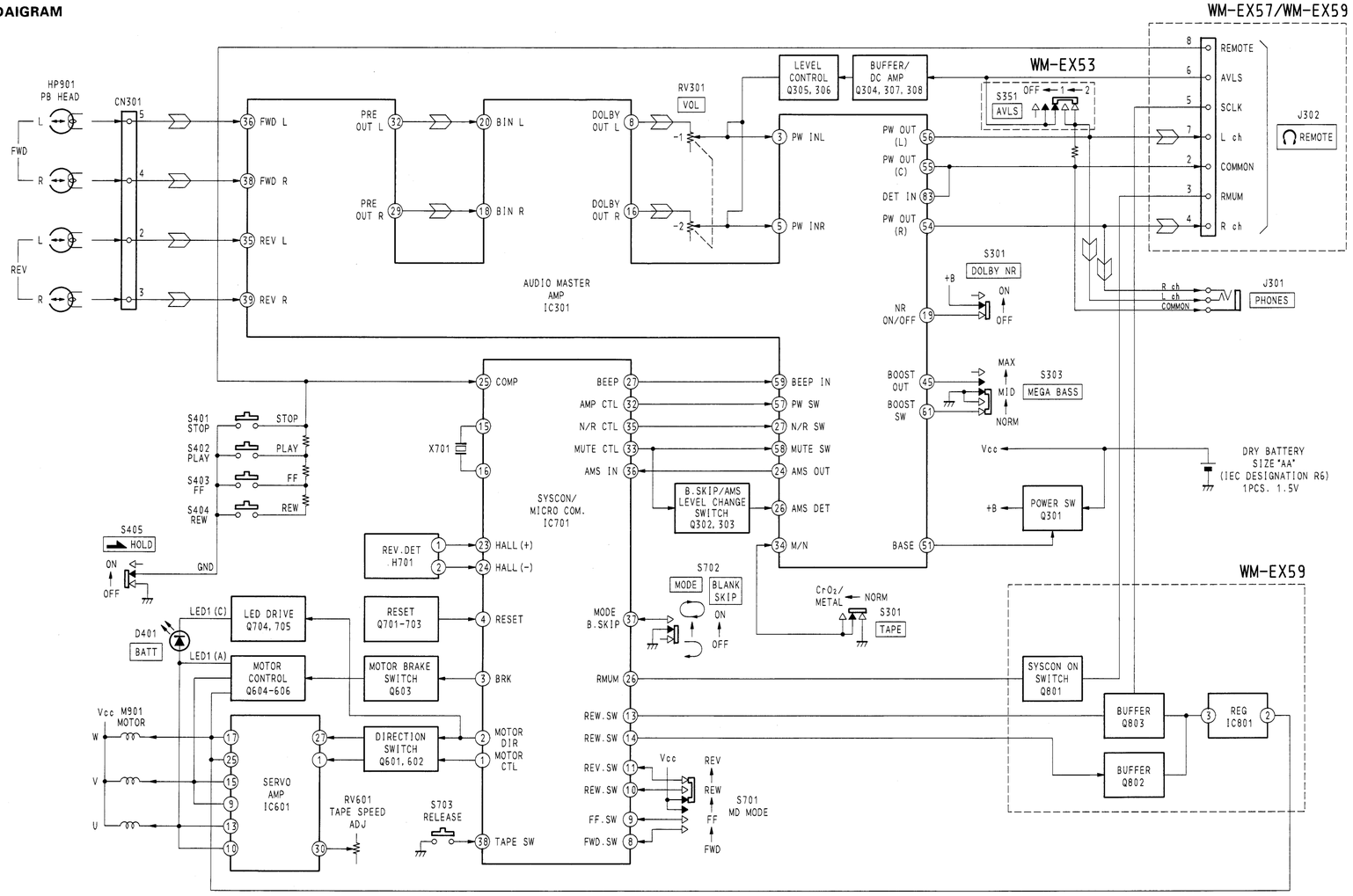


SECTION 5
DIAGRAMS

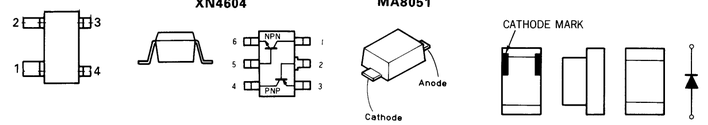
5-1. IC702 SYSTEM CONTROL IC (MSM6576-30GS-K)

Pin No.	Pin Name	I/O	Function
1	M-CTL	O	"H"=MOTOR ON
2	M-DIR	O	"H"=counter-clockwise rotation, "L"=clockwise rotation.
3	M-BRK	O	"H"=BREAK ON
4	RESET	–	Reset pin
5	TEST1	–	Test pin
6	TEST2	–	Test pin
7	TEST3	–	Test pin
8	FWD	I	Switch pin
9	FF	I	Switch pin
10	REW	I	Switch pin
11	REV	I	Switch pin
12	RADIO PW	I/O	Not used in this unit.
13	SCLK1	I/O	Reception in cf unit, transmission in tc unit.
14	DATA1	O	Communication pin
15	XTB	–	Connected to crystal oscillator for clock
16	XT	–	Connected to crystal oscillator for clock
17	VDD	–	1.5 V power supply
18	VSS1	–	GND
19	VCM	–	Increases power supply voltage
20	VCP	–	Increases power supply voltage
21	VSS2	–	Increases power supply voltage
22	VEE	–	Increases power supply voltage
23	HALL+	I	Hall element detected by rotation
24	HALL–	I	Hall element detected by rotation
25	COMP IN	I	Operation button signal
26	RMUM	I	"L"=Remote commander micro computer on. Output from remote commander when "h" (tc unit only)
27	BEEP	–	Beep pin
28	CE CTL	O	Not used in this unit.
29	CLAW(FWD)	I	"L"=With claw
30	LED1	O	"H"=Lights on
31	LED2	O	"H"=Lights on
32	AMP CTL	O	"H"=AMP ON
33	MUTE CTL	O	"L"=MUTE ON
34	RQT	O	Not used in this unit.
35	CUE/REVIEW CTL	O	"H"=CUE and REVIEW, "L"=other than these.
36	AMS IN	I	Not used.
37	MODE	I	"L"=ENDLESS MODE, BL. SKIP ON
38	TAPE	I	"L"=with TAPE
39	VDD	–	1.5 V power supply
40	CLAW(REV)	I	"L"=with claw
41	CF/TC	I	"L"=CF, "H"=TC
42	REC/PB	I	"L"=REC, "H"=PB
43	AUS/CUE·REVIEW	I	"L"=AMS, "H"=CUE, REVIEW
44	REC CTL	O	"H"=REC ON

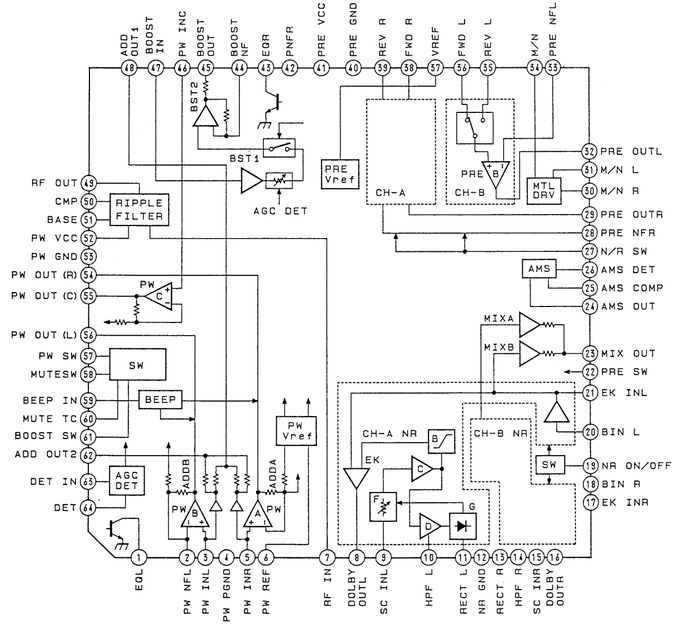
5-2. BLOCK DAIGRAM



SEMICONDUCTOR LEAD LAYOUTS

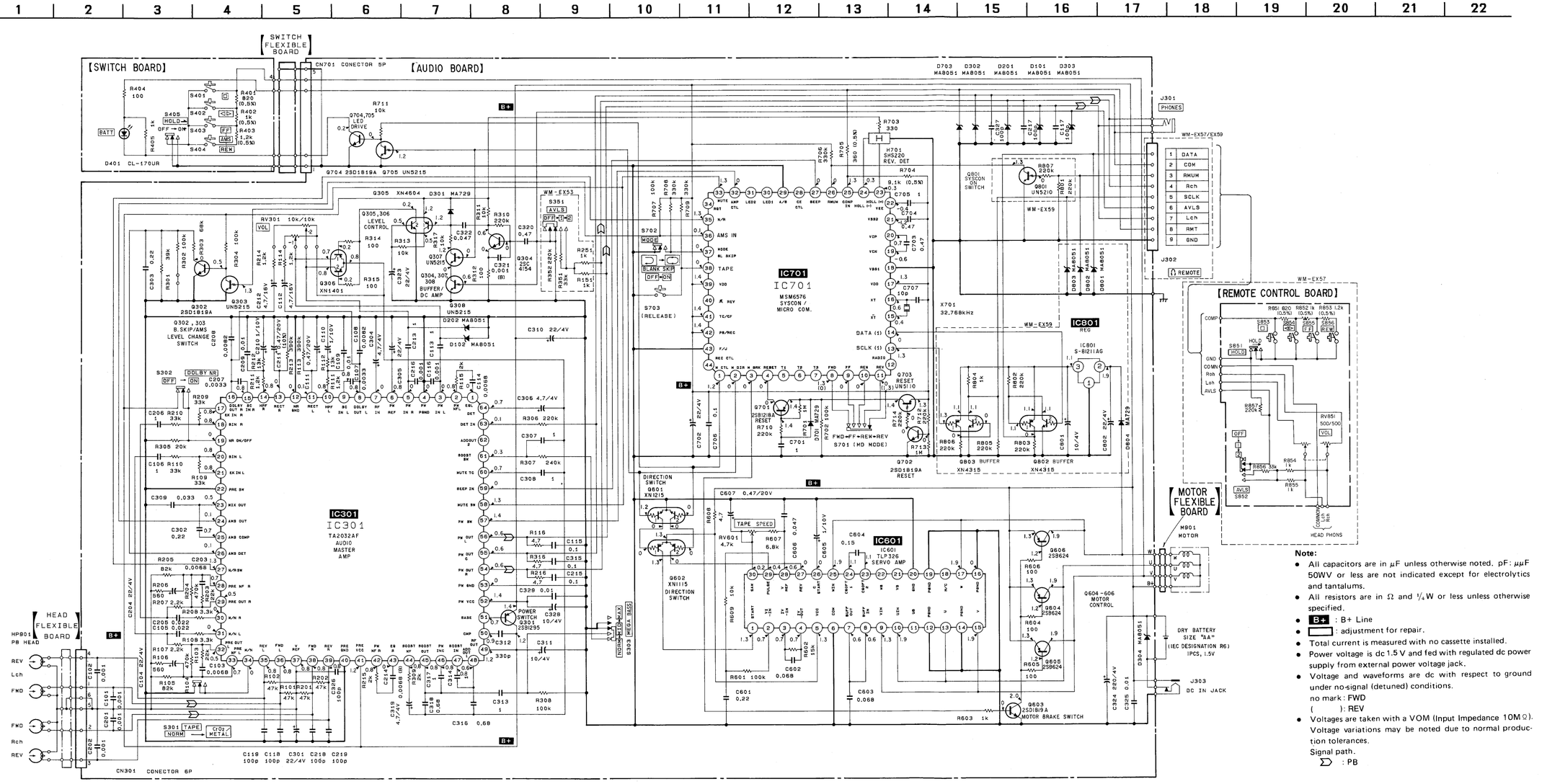


● IC BLOCK DIAGRAM



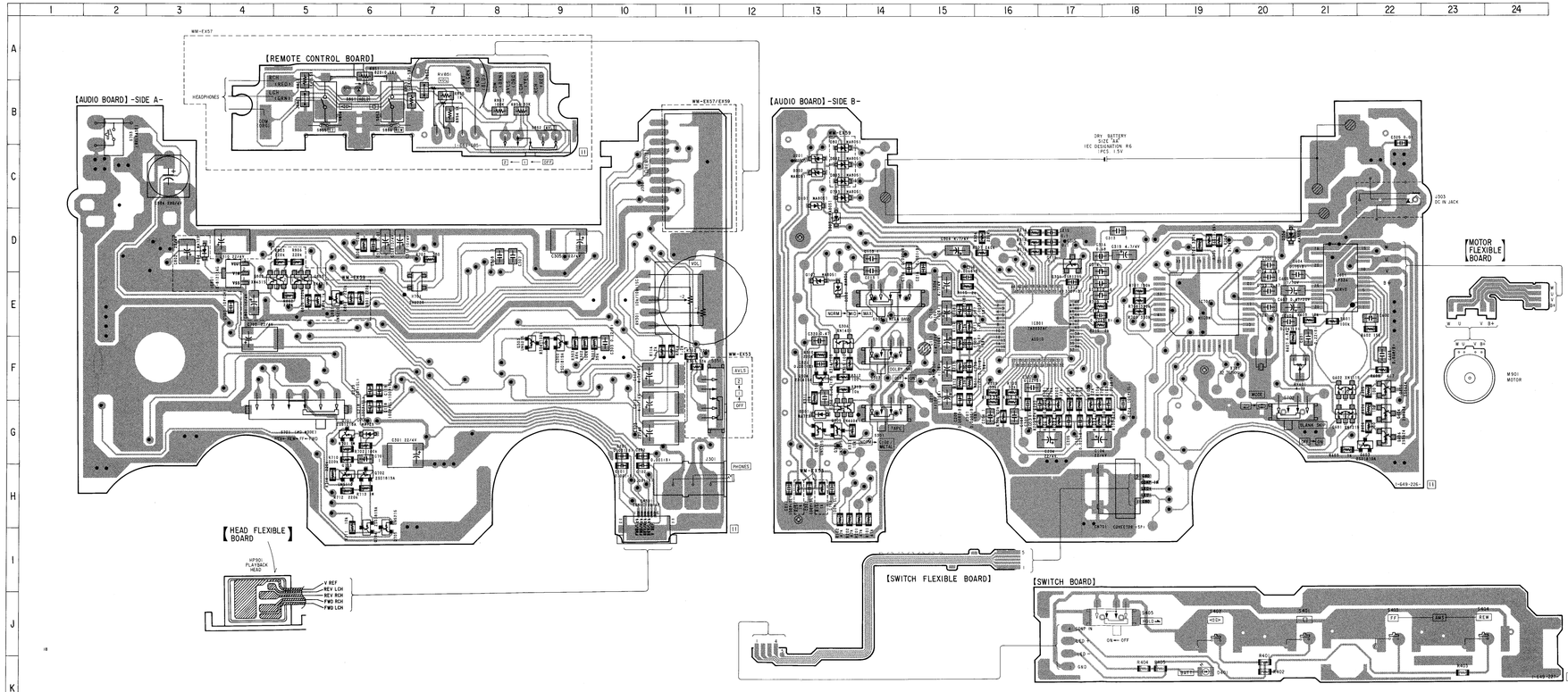
5-3. SCHEMATIC DIAGRAM

S page 11 for IC Block Diagram.



5-4. PRINTED WIRING BOARDS

See page 11 for S miconductor L ad Layouts.



• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D101	D-13	Q302	F-9
D102	E-13	Q303	F-9
D201	C-13	Q304	F-13
D202	E-13	Q305	G-13
D301	G-13	Q306	F-13
D302	C-13	Q307	G-13
D303	D-13	Q308	G-13
D304	D-20	Q601	G-21
D401	K-19	Q602	G-21
D701	G-6	Q603	G-22
D703	C-13	Q604	G-22
D801	C-13	Q605	G-22
D802	C-13	Q606	G-22
D803	C-13	Q701	G-6
		Q702	H-6
H701	E-7	Q703	H-6
		Q704	I-6
IC301	E-17	Q705	I-6
IC601	E-21	Q801	E-5
IC701	E-19	Q802	E-5
IC801	E-4	Q803	E-5
Q301	D-17		

Note:

: Through hole.

• : Pattern on the side which is seen.

SECTION 6
EXPLODED VIEWS

NOTE:

-xx,-x mean standardized parts, so they may have some differences from the original one.

Color Indication of Appearance Parts

Example:

KNOB, BALANCE (WHITE)...(RED)

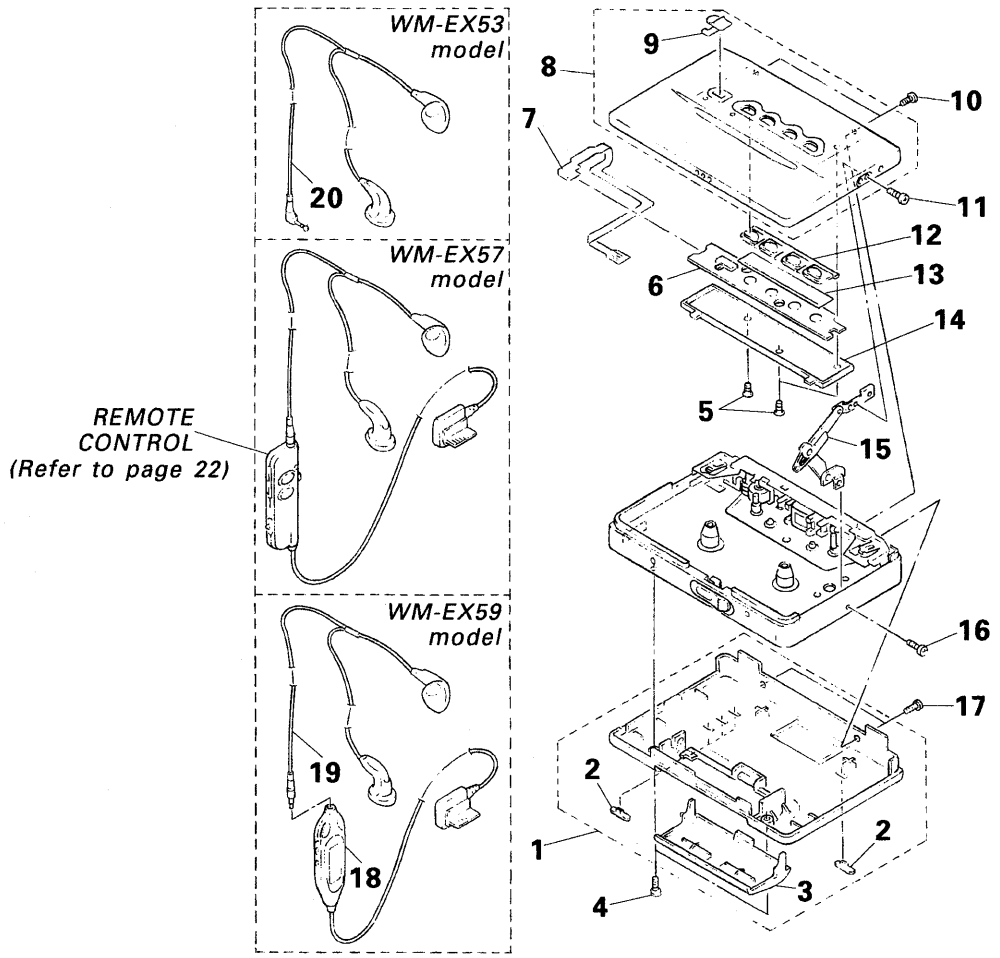
↑ Parts color ↑ Cabinet's color

Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

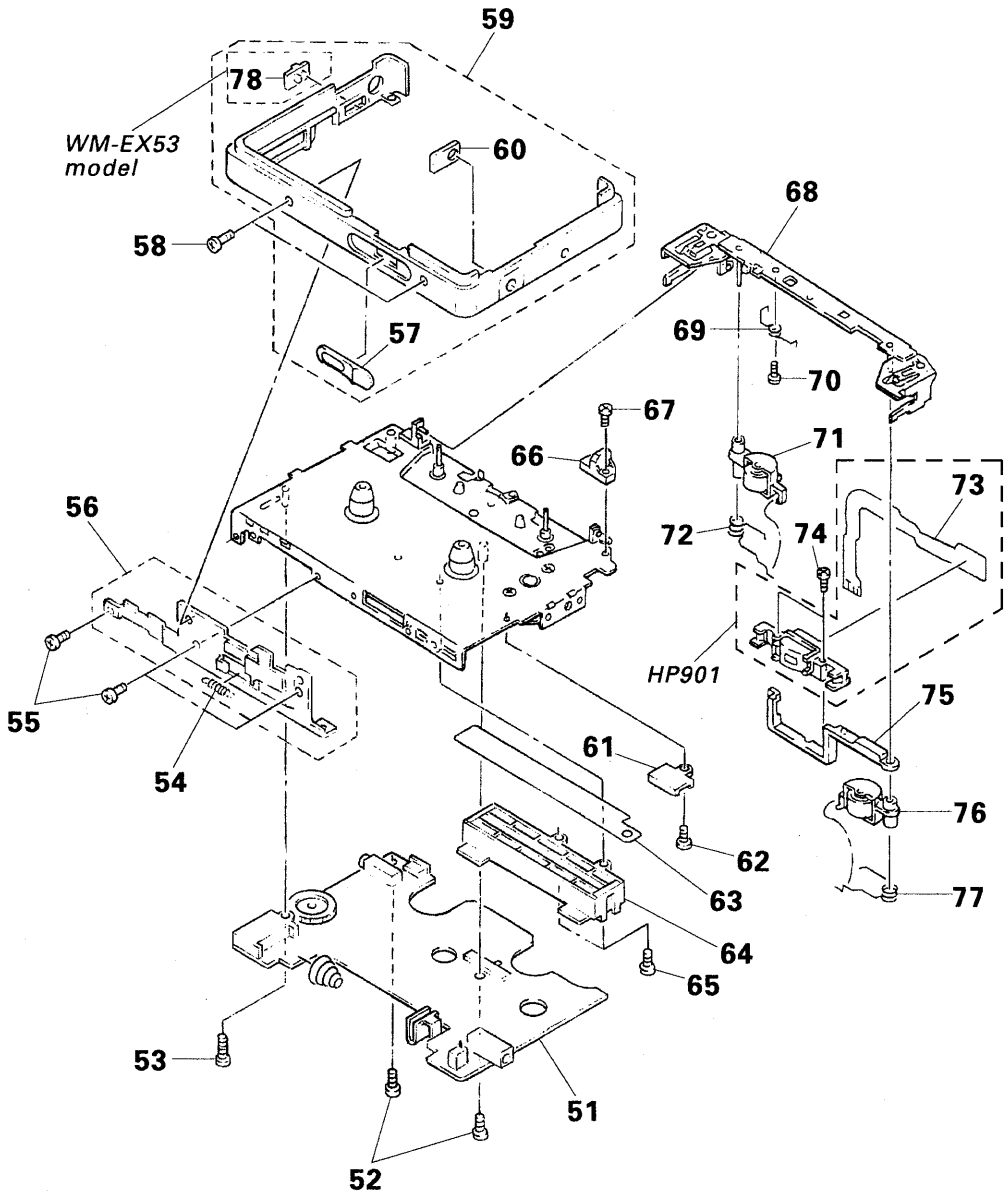
6-1. CABINET SECTION



Ref.No.	Part No.	Description	Remark
1	X-3366-961-1	CASE ASSY (WM-EX53)	
1	X-3366-962-1	CASE ASSY (WM-EX57)	
1	X-3366-963-1	CASE ASSY (WM-EX59)	
2	3-904-655-01	KNOB (MB)	
3	6-904-664-11	LID, BATTERY CASE (WM-EX59)	
3	3-904-664-21	LID, BATTERY CASE (WM-EX53,EX57)	
4	3-704-197-71	SCREW (M1.4X4.5), LOCKING (WM-EX59)	
4	3-704-197-73	SCREW (M1.4X4.5), LOCKING (WM-EX53,EX57)	
5	3-375-114-61	SCREW	
*6	1-649-227-11	SWITCH BOARD	
7	1-649-229-11	SWITCH FLEXIBLE BOARD	
8	X-3366-957-1	LID ASSY (TC-1), CASSETTE (WM-EX53)	
8	X-3366-958-1	LID ASSY (TC-2), CASSETTE (WM-EX57)	
8	X-3366-964-1	LID ASSY (TC-3), CASSETTE (WM-EX59)	
9	3-904-652-01	KNOB (HOLD)	

Ref.No.	Part No.	Description	Remark
10	3-365-630-21	SCREW (M1.4) (WM-EX59)	
10	3-365-630-31	SCREW (M1.4) (WM-EX53,EX57)	
11	3-704-197-03	SCREW (M1.4X1.6), LOCKING (WM-EX53,EX57)	
11	3-704-197-01	SCREW (M1.4X1.6), LOCKING (WM-EX59)	
12	3-904-659-01	BUTTON (TC), CONTROL	
13	3-904-650-01	SHEET (SW)	
*14	3-904-653-01	PANEL, BLIND	
15	X-3366-557-1	ARM ASSY, CLICK	
16	3-704-197-51	SCREW (M1.4X3.5), LOCKING (WM-EX59)	
16	3-704-197-53	SCREW (M1.4X3.5), LOCKING (WM-EX53,EX57)	
17	3-704-197-11	SCREW (M1.4X2.0), LOCKING (WM-EX59)	
17	3-704-197-13	SCREW (M1.4X2.0), LOCKING (WM-EX53,EX57)	
18	1-467-202-11	REMOTE CONTROL UNIT (RM-WM70E) (WM-EX59)	
19	8-953-537-90	HEADPHONE MDR-E741MP//KSET (WM-EX59)	
20	8-953-538-90	HEADPHONE MDR-E741//KSET (WM-EX53)	

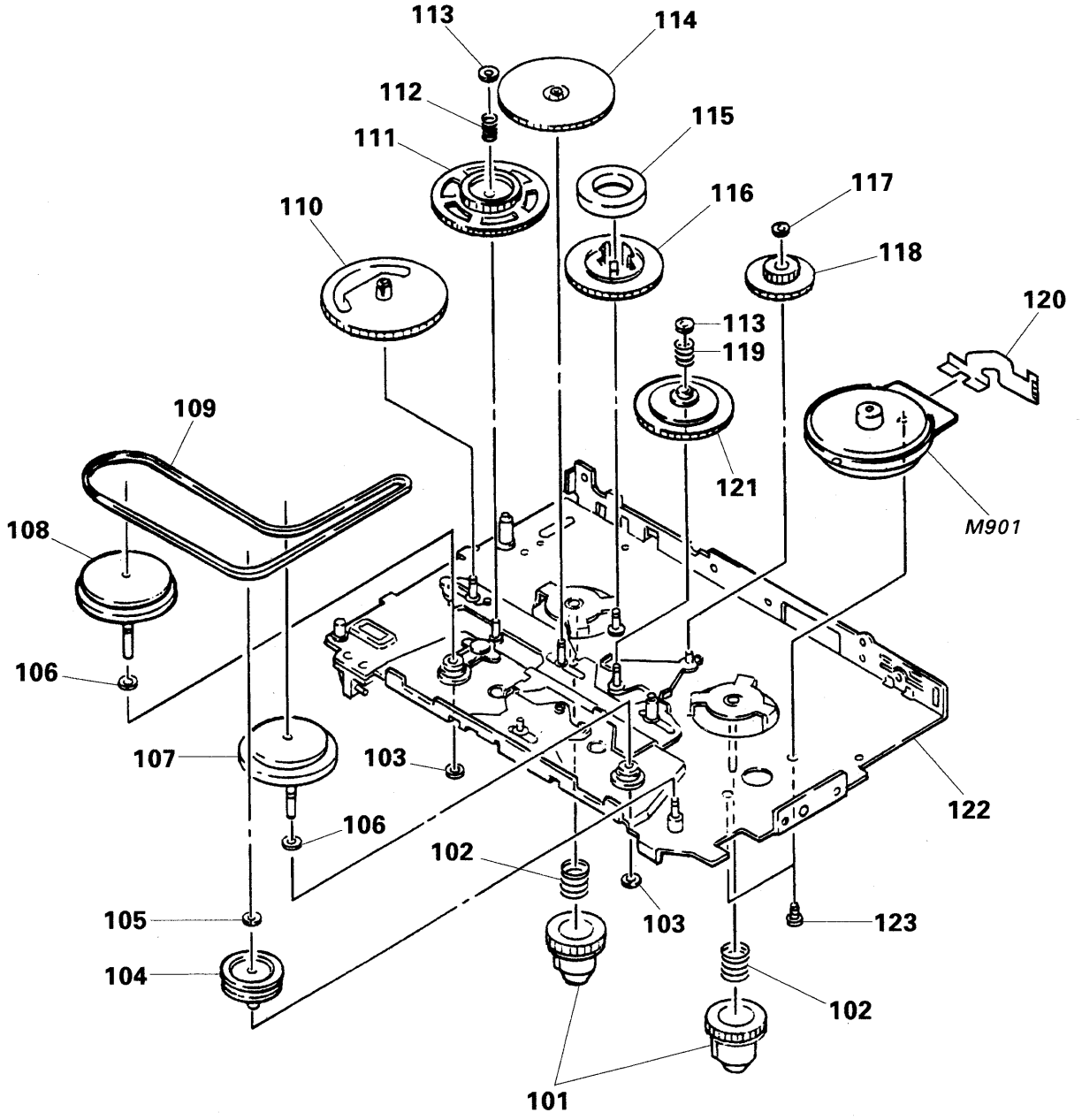
6-2. BOARD, MD SECTION



Ref.No.	Part No.	Description	Remark
51	A-3016-445-A	AUDIO BOARD, COMPLETE (WM-EX53)	
51	A-3016-447-A	AUDIO BOARD, COMPLETE (WM-EX59)	
51	A-3016-448-A	AUDIO BOARD, COMPLETE (WM-EX57)	
52	3-335-797-01	SCREW (M1.4X2), TOOTHED LOCK	
53	3-335-797-81	SCREW (M1.4X5), TOOTHED LOCK	
54	3-904-628-01	SPRING, TENSION	
55	3-704-197-01	SCREW (M1.4X1.6), LOCKING	
56	X-3366-951-1	BRACKET ASSY	
57	3-904-629-11	KNOB (OPEN)	
58	3-704-197-53	SCREW (M1.4X3.5), LOCKING (WM-EX53,EX57)	
58	3-704-197-51	SCREW (M1.4X3.5), LOCKING (WM-EX59)	
59	X-3366-959-1	ORNAMENT ASSY (TC-1), REEL (WM-EX53)	
59	X-3366-960-1	ORNAMENT ASSY (TC-2), REEL (WM-EX57)	
59	X-3367-330-1	ORNAMENT ASSY (TC-3), REEL (WM-EX59)	
60	3-904-622-01	SPACER (DCIN-J)	
61	3-904-640-01	STOPPER (DC-IN)	
62	3-704-197-13	SCREW (M1.4X2.0), LOCKING	

Ref.No.	Part No.	Description	Remark
63	3-904-651-01	SHEET, INSULATING	
64	3-904-662-01	HOLDER (BATTERY)	
65	3-704-197-33	SCREW (M1.4X3.0), LOCKING	
66	3-386-704-01	GUIDE (B), HOLDER	
67	3-704-197-21	SCREW (M1.4X2.5), LOCKING	
68	X-3366-299-1	HOLDER ASSY	
69	3-386-683-01	SPRING (H)	
70	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3	
71	X-3366-298-1	PINCH LEVER (N) ASSY	
72	3-386-684-02	SPRING (PINCH N)	
73	1-647-786-11	PC BOARD, HEAD FLEXIBLE	
74	3-704-413-31	SCREW (M1.4X7.2)	
*75	3-386-646-01	LEVER, HEAD	
76	X-3366-296-1	PINCH LEVER (R) ASSY	
77	3-386-685-02	SPRING (PINCH R)	
78	3-904-630-01	KNOB (AVLS) (WM-EX53)	
HP901	1-500-025-11	HEAD, MAGNETIC (PLAYBACK)	

6-3. MD SECTION (MT-WMEX606-60)

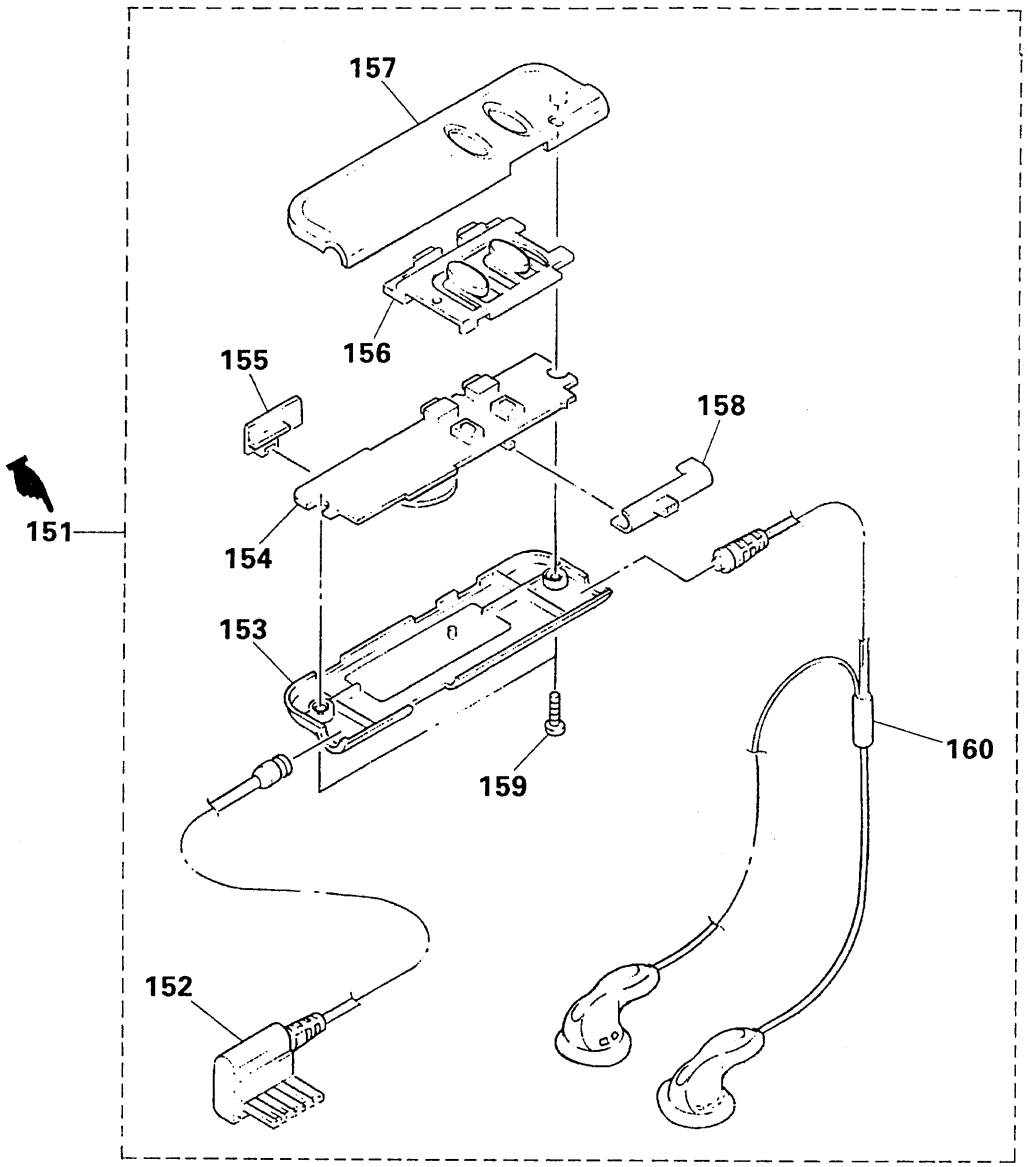


Ref.No.	Part No.	Description	Remark
101	3-386-634-01	GEAR (REEL)	
102	3-386-662-01	SPRING, COMPRESSION	
103	3-325-394-01	WASHER, STOPPER	
104	3-386-711-01	PULLEY (REVERSE)	
105	3-338-645-21	WASHER (0.8-2.5)	
106	3-906-183-01	WASHER	
107	X-3366-297-1	WHEEL (R) ASSY, CAPSTAN	
108	X-3366-294-1	WHEEL (N) ASSY, CAPSTAN	
109	3-388-079-01	BELT	
110	3-386-852-01	GEAR (CAM)	
111	3-386-631-01	GEAR (A)	
112	3-904-228-01	SPRING, COMPRESSION	

Ref.No.	Part No.	Description	Remark
113	3-386-694-01	WASHER	
114	3-386-691-01	GEAR (B)	
115	3-386-706-01	MAGNET	
116	3-386-633-01	GEAR (E)	
117	3-338-645-31	WASHER (0.8-2.5)	
118	3-386-632-03	GEAR (D)	
119	3-904-227-01	SPRING, COMPRESSION	
120	1-649-228-11	PC BOARD, MOTOR FLEXIBLE	
121	X-3366-293-1	CLUTCH ASSY	
122	X-3366-295-4	CHASSIS ASSY	
123	3-906-045-01	SCREW	
M901	1-698-084-11	MOTOR	

REVISED

6-4. REMOTE CONTROL UNIT (WM-EX57)



Ref.No.	Part No.	Description	Remark
151	A-3042-177-A	REMOTE CONTROL COMPLETE ASSY	
152	1-690-927-21	CORD (WITH PLUG)	
153	X-3364-608-1	CASE (LOWER) ASSY	
154	A-3060-807-A	REMOTE CONTROL BOARD COMPLETE	
155	3-378-324-01	KNOB (B), REMOTE CONTROL	
156	3-378-329-02	BUTTON	
157	3-378-330-21	CASE (UPPER)	
158	3-378-325-01	KNOB (A), REMOTE CONTROL	
159	3-318-203-71	SCREW (B1.7X5), TAPPING	
160	8-953-555-90	HEADPHONE MDR-E741PT2 SET	

SECTION 7
ELECTRICAL PARTS LIST

AUDIO

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA··· : μA···, uPA··· : μPA···, uPB··· : μPB···, uPC··· : μPC···, uPD··· : μPD···
- CAPACITORS
  uF : μF
- COILS
  uH : μH

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			Remark
	A-3016-445-A	AUDIO BOARD, COMPLETE			(WM-EX53)
	A-3016-448-A	AUDIO BOARD, COMPLETE			(WM-EX57)
	A-3016-447-A	AUDIO BOARD, COMPLETE			(WM-EX59)
		**********			
	3-904-649-01	SPRING, BATTERY COIL			
	3-904-663-01	TERMINAL BOARD(PLUS), BATTERY			
		< CAPACITOR >			
C101	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C102	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C103	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C104	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C105	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C106	1-164-346-11	CERAMIC CHIP	1uF		16V
C107	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C108	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C109	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-135-208-11	TANTAL. CHIP	1uF	10%	10V
C111	1-135-192-21	TANTAL. CHIP	0.47uF	10%	20V
C112	1-128-029-11	ELECT CHIP	4.7uF	0	16V
C113	1-164-346-11	CERAMIC CHIP	1uF		16V
C114	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C115	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C116	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C117	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C118	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C119	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C201	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C202	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C203	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C204	1-135-202-21	TANTAL. CHIP	22uF	20%	4V
C205	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C206	1-164-346-11	CERAMIC CHIP	1uF		16V
C207	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C208	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C209	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C210	1-135-208-11	TANTAL. CHIP	1uF	10%	10V
C211	1-135-192-21	TANTAL. CHIP	0.47uF	10%	20V
C212	1-128-029-11	ELECT CHIP	4.7uF	0	16V
C213	1-164-346-11	CERAMIC CHIP	1uF		16V
C214	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C215	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C216	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C217	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C218	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C219	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C301	1-128-015-11	ELECT CHIP	22uF	0	4V
C302	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C303	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C304	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C305	1-128-015-11	ELECT CHIP	22uF	0	4V
C306	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C307	1-164-346-11	CERAMIC CHIP	1uF		16V
C308	1-164-346-11	CERAMIC CHIP	1uF		16V
C309	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C310	1-128-015-11	ELECT CHIP	22uF	0	4V
C311	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C312	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C313	1-164-346-11	CERAMIC CHIP	1uF		16V
C314	1-164-346-11	CERAMIC CHIP	1uF		16V
C315	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C316	1-164-700-11	CERAMIC CHIP	0.68uF		16V
C317	1-164-346-11	CERAMIC CHIP	1uF		16V
C318	1-164-700-11	CERAMIC CHIP	0.68uF		16V
C319	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C320	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C321	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C322	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C323	1-128-015-11	ELECT CHIP	22uF	0	4V
C324	1-126-246-11	ELECT CHIP	220uF	20%	4V
C325	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C326	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C327	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C328	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C329	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C601	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C602	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C603	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C604	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V

AUDIO

Ref.No.	Part No.	Description				Remark
C605	1-135-208-11	TANTAL. CHIP	1uF	20%	10V	
C606	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C607	1-135-192-21	TANTAL. CHIP	0.47uF	20%	20V	
C701	1-164-346-11	CERAMIC CHIP	1uF		16V	
C702	1-128-015-11	ELECT CHIP	22uF	0	4V	
C703	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C704	1-164-005-11	CERAMIC CHIP	0.47uF		25V	
C705	1-164-346-11	CERAMIC CHIP	1uF		16V	
C706	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C707	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	
C801	1-135-201-11	TANTALUM CHIP	10uF	20% 4V		(WM-EX59)
C802	1-135-202-21	TANTAL. CHIP	22uF	20% 4V		(WM-EX59)
		< CONNECTOR >				
CN301	1-573-346-21	CONNECTOR, FFC/FPC 6P				
CN701	1-569-252-21	HOUSING, CONNECTOR (FPC) 5P				
		< DIODE >				
D101	8-719-422-37	DIODE	MA8051			
D102	8-719-422-37	DIODE	MA8051			
D201	8-719-422-37	DIODE	MA8051			
D202	8-719-422-37	DIODE	MA8051			
D301	8-719-420-51	DIODE	MA729			
D302	8-719-422-37	DIODE	MA8051			
D303	8-719-422-37	DIODE	MA8051			
D304	8-719-422-37	DIODE	MA8051			
D701	8-719-420-51	DIODE	MA729			
D703	8-719-422-37	DIODE	MA8051			
D801	8-719-422-37	DIODE	MA8051			(WM-EX59)
D802	8-719-422-37	DIODE	MA8051			(WM-EX59)
D803	8-719-422-37	DIODE	MA8051			(WM-EX59)
D804	8-719-420-51	DIODE	MA729			(WM-EX59)
		< HOLE ELEMENT >				
H701	8-759-084-18	IC SHS220-IJ				
		< IC >				
IC301	8-759-155-37	IC	TA2032AF			
IC601	8-759-996-13	IC	TLP326ADB			
IC701	8-759-181-64	IC	MSM6576-30GS-K			
IC801	8-759-504-04	IC	S-81211AG-RA-S (WM-EX59)			
		< JACK >				
J301	1-565-436-11	JACK				
J302	1-573-794-21	JACK (Ω REMOTE) (WM-EX57/EX59)				
J303	1-750-061-11	JACK, DC (POLARITY UNIFIED TYPE)				
		< TRANSISTOR >				
Q301	8-729-807-86	TRANSISTOR	2SB1295-UL5			
Q302	8-729-402-32	TRANSISTOR	2SD1819A-R			
Q303	8-729-420-50	TRANSISTOR	UN5215			
Q304	8-729-602-21	TRANSISTOR	2SC4154-F			
Q305	8-729-425-25	TRANSISTOR	XN4604-TX			
Q306	8-729-403-42	TRANSISTOR	XN1401			
Q307	8-729-420-50	TRANSISTOR	UN5215			
Q308	8-729-420-50	TRANSISTOR	UN5215			
Q601	8-729-403-17	TRANSISTOR	XN1215			
Q602	8-729-403-45	TRANSISTOR	XN1115			
Q603	8-729-402-32	TRANSISTOR	2SD1819A-R			
Q604	8-729-141-48	TRANSISTOR	2SB624-BV345			
Q605	8-729-141-48	TRANSISTOR	2SB624-BV345			
Q606	8-729-141-48	TRANSISTOR	2SB624-BV345			
Q701	8-729-230-60	TRANSISTOR	2SA1586-YG			
Q702	8-729-402-32	TRANSISTOR	2SD1819A-R			
Q703	8-729-422-51	TRANSISTOR	UN5110-QRS			
Q704	8-729-402-32	TRANSISTOR	2SD1819A-R			
Q705	8-729-420-50	TRANSISTOR	UN5215			
Q801	8-729-420-44	TRANSISTOR	UN5210			(WM-EX59)
Q802	8-729-422-18	TRANSISTOR	XN4315			(WM-EX59)
Q803	8-729-422-18	TRANSISTOR	XN4315			(WM-EX59)
		< RESISTOR >				
R101	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R102	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R103	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R104	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R105	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R106	1-216-818-11	METAL CHIP	560	5%	1/16W	
R107	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R108	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R109	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R110	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R111	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R112	1-216-994-11	METAL GLAZE	13K	5%	1/16W	
R113	1-216-852-11	METAL CHIP	390K	5%	1/16W	
R114	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R115	1-218-271-11	METAL GLAZE	2K	5%	1/16W	
R116	1-216-793-11	METAL GLAZE	4.7	5%	1/16W	
R151	1-216-821-11	METAL CHIP	1K	5%	1/16W	(WM-EX53)
R201	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R202	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R203	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R204	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R205	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R206	1-216-818-11	METAL CHIP	560	5%	1/16W	
R207	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R208	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	

AUDIO | HEAD FLEXIBLE | MOTOR FLEXIBLE | REMOTE CONTROL

Ref.No.	Part No.	Description				Remark
R209	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R210	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R211	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R212	1-216-994-11	METAL GLAZE	13K	5%	1/16W	
R213	1-216-852-11	METAL CHIP	390K	5%	1/16W	
R214	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R215	1-218-271-11	METAL GLAZE	2K	5%	1/16W	
R216	1-216-793-11	METAL GLAZE	4.7	5%	1/16W	
R251	1-216-821-11	METAL CHIP	1K	5%	1/16W	(WM-EX53)
R301	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R302	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R303	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R304	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R305	1-218-292-11	METAL GLAZE	20K	5%	1/16W	
R306	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R307	1-218-349-11	METAL CHIP	240K	5%	1/16W	
R308	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R309	1-218-271-11	METAL GLAZE	2K	5%	1/16W	
R310	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R311	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R312	1-216-809-11	METAL CHIP	100	5%	1/16W	
R313	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R314	1-216-809-11	METAL CHIP	100	5%	1/16W	
R315	1-216-809-11	METAL CHIP	100	5%	1/16W	
R316	1-216-793-11	METAL GLAZE	4.7	5%	1/16W	
R317	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R351	1-216-839-11	METAL CHIP	33K	5%	1/16W	(WM-EX53)
R352	1-216-849-11	METAL CHIP	220K	5%	1/16W	(WM-EX53)
R601	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R602	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R603	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R604	1-216-809-11	METAL CHIP	100	5%	1/16W	
R605	1-216-809-11	METAL CHIP	100	5%	1/16W	
R606	1-216-809-11	METAL CHIP	100	5%	1/16W	
R607	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R608	1-216-793-11	METAL GLAZE	4.7	5%	1/16W	
R609	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R701	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R702	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R703	1-216-815-11	METAL CHIP	330	5%	1/16W	
R704	1-218-345-11	METAL CHIP	9.1K	0.50%	1/16W	
R705	1-218-269-11	METAL CHIP	360	0.50%	1/16W	
R706	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R707	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R708	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R709	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R710	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R711	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R712	1-216-849-11	METAL CHIP	220K	5%	1/16W	

Ref.No.	Part No.	Description				Remark
R713	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R714	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R801	1-216-849-11	METAL CHIP	220K	5%	1/16W	(WM-EX59)
R802	1-216-849-11	METAL CHIP	220K	5%	1/16W	(WM-EX59)
R803	1-216-849-11	METAL CHIP	220K	5%	1/16W	(WM-EX59)
R804	1-216-821-11	METAL CHIP	1K	5%	1/16W	(WM-EX59)
R805	1-216-849-11	METAL CHIP	220K	5%	1/16W	(WM-EX59)
R806	1-216-849-11	METAL CHIP	220K	5%	1/16W	(WM-EX59)
R807	1-216-849-11	METAL CHIP	220K	5%	1/16W	(WM-EX59)
		< VARIABLE RESISTOR >				
RV301	1-223-470-11	RES, VAR, CARBON 10K/10K				
RV601	1-241-394-11	RES, ADJ, METAL GLAZE 4.7K				
		< SWITCH >				
S301	1-571-275-31	SWITCH, SLIDE (TAPE)				
S302	1-571-275-31	SWITCH, SLIDE (DOLBY)				
S303	1-571-506-41	SWITCH, SLIDE (MEGA BASS)				
S351	1-571-506-41	SWITCH, SLIDE (AVLS)				(WM-EX53)
S701	1-692-370-11	SWITCH, SLIDE (MD MODE)				
S702	1-571-275-31	SWITCH, SLIDE (MODE)				
S703	1-572-287-21	SWITCH, PUSH (RELESE)				
		< VIBRATOR >				
X701	1-579-616-11	VIBRATOR, CRYSTAL (32.768kHz)				
**********						
	1-647-786-11	HEAD FLEXIBLE BOARD				
		**********				
**********						
	1-649-228-11	MOTOR FLEXIBLE BOARD				
		**********				
**********						
	A-3060-807-A	REMOTE CONTROL BOARD, COMPLETE				(WM-EX57)
		**********				
		< JUMPER RESISTOR >				
JR851	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR852	1-216-295-00	METAL CHIP	0	5%	1/10W	
		< RESISTOR >				
R851	1-216-649-11	METAL CHIP	820	0.5%	1/10W	
R852	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R853	1-216-653-11	METAL CHIP	1.2K	0.5%	1/10W	
R854	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R855	1-216-049-00	METAL CHIP	1K	5%	1/10W	

REMOTE CONTROL | SWITCH | SWITCH FLEXIBLE

Ref.No.	Part No.	Description			Remark
R856	1-216-085-00	METAL CHIP	33K	5%	1/10W
R857	1-216-105-00	METAL CHIP	220K	5%	1/10W
		< VARIABLE RESISTOR >			
RV851	1-241-854-11	RES, VAR CARBON 500/500 (VOL)			
		< SWITCH >			
S851	1-570-675-11	SWITCH, SLIDE (HOLD)			
S852	1-570-386-11	SWITCH, SLIDE (AVLS)			
S853	1-572-473-11	SWITCH, TACTIL (□)			
S854	1-572-473-11	SWITCH, TACTIL (◁▷)			
S855	1-570-204-21	SWITCH, KEY BOARD (FF)			
S856	1-570-204-21	SWITCH, KEY BOARD (REW)			
**********					
*	1-649-227-11	SWITCH BOARD			
		**********			
		< DIODE >			
D401	8-719-026-34	DIODE CL-170UR-CD-T (BATT)			
		< RESISTOR >			
R401	1-216-820-11	METAL CHIP	820	5%	1/16W
R402	1-216-821-11	METAL CHIP	1K	5%	1/16W
R403	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R404	1-216-809-11	METAL CHIP	100	5%	1/16W
R405	1-216-821-11	METAL CHIP	1K	5%	1/16W
		< SWITCH >			
S401	1-572-270-11	SWITCH, KEYBOARD (□)			
S402	1-572-270-11	SWITCH, KEYBOARD (◁▷)			
S403	1-572-270-11	SWITCH, KEYBOARD (FF)			
S404	1-572-270-11	SWITCH, KEYBOARD (REW)			
S405	1-571-275-31	SWITCH, SLIDE (HOLD)			
**********					
	1-649-229-11	SWITCH FLEXIBLE BOARD			
		**********			
**********					
		MISCELLANEOUS			
		**********			
7	1-649-229-11	SWITCH FLEXIBLE BOARD			
73	1-647-786-11	PC BOARD, HEAD FLEXIBLE			
120	1-649-228-11	PC BOARD, MOTOR FLEXIBLE			
HP901	1-500-025-11	HEAD, MAGNETIC (PLAYBACK)			
M901	1-698-084-11	MOTOR			
**********					

Ref.No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-467-202-11	REMOTE CONTROL UNIT (RM-WM70E) (WM-EX59)	
	1-690-927-21	CORD (WITH PLUG) (WM-EX57)	
*	3-385-494-11	CUSHION	
	3-757-390-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH,) (WM-EX53)	
	3-757-390-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH) (AEP) (WM-EX53)	
	3-757-390-51	MANUAL, INSTRUCTION (ITALIAN, PORTUGUSE) (AEP) (WM-EX53)	
	3-757-391-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH) (WM-EX57)	
	3-757-391-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH) (AEP) (WM-EX57)	
	3-757-391-51	MANUAL, INSTRUCTION (ITALIAN, PORTUGUSE) (AEP) (WM-EX57)	
	3-757-392-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH) (WM-EX59)	
	3-757-392-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH) (AEP) (WM-EX59)	
	3-757-392-51	MANUAL, INSTRUCTION (ITALIAN, PORTUGUESE) (AEP) (WM-EX59)	
*	3-904-717-01	INDIVIDUAL CARTON (WM-EX53)	
*	3-904-720-01	INDIVIDUAL CARTON (WM-EX57)	
*	3-904-721-01	INDIVIDUAL CARTON (WM-EX59)	
	3-906-568-01	CASE, CARRYING	
	8-953-537-90	HEADPHONE MDR-E741MP//K SET (WM-EX59)	
	8-953-538-90	HEADPHONE MDR-E741//K SET (WM-EX53)	
	8-953-555-90	HEADPHONE MDR-E741PTS SET (WM-EX57)	
	A-3042-177-A	REMOTE CONTROL COMPLETE (WM-EX57)	
	X-3329-657-1	ATTACHMENT	

9-959-069-11
(Including 9-959-069-91)

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